

REMARKS

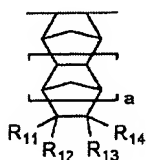
Claims 1-9 are pending in this application. As a result of claim amendments in this Response to Office Action, claims 1-9 will still be pending in this application.

In the Office Action, the Examiner rejected claims 1-9 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0009666 A1 (Sato, et al.). According to the Examiner, Sato et al. teach a positive photoresist composition containing Resin 1-1 (polymer of norbornene/ethoxymethyl acrylate/maleic anhydride in the molar ratio of 40%/ 19%/ 41%), photoacid generator 4-36, organic basic compound, and surfactant, and the composition is dissolved in propylene glycol monomethyl ether acetate. The Examiner states that Resin 1-1, which contains the ethoxymethyl acrylate unit, teaches the polymer of Formula I: R_3 would be a hydrogen atom, R_1 would be an alkyl group having 2 carbon atoms, m and n would both be 0, and l would be 0.19. The Examiner also states that the present claim does not exclude other repeating units such as norbornene unit or maleic anhydride unit, since the sum of l , m and n does not necessarily have to equal 1.

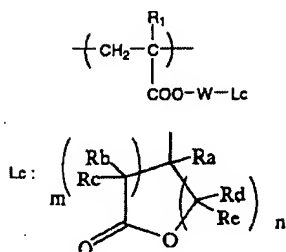
Moreover, the Examiner states that the PAG 4-36 on page 33 of Sato et al. teaches present photoacid generator of Formula II: R_1 and R_2 would both be aryl groups, R_3 - R_5 would all be hydrogen atoms, and n would be an integer of 4. In addition, in Example 1-1, the PAG 4-36 is 0.2 g; the resin is 10 g; the basic compound is 0.0001 g; and the surfactant is 0.1 g, such that, in the example, 1.94 wt% of the PAG is used, and 97.1 wt% of the resin is used. The Examiner concludes that the prior art teaches the amount of the photoacid generator claimed in claims 5 and 6, as well as the amount of the polymer of Formula I claimed in claim 7. Furthermore, the Examiner states that, after coating the photoresist solution onto a silica wafer, Sato et al. expose the coated film with ArF excimer laser of wavelength 193 nm. Therefore, according to the Examiner, Sato et al. teach claims 1-9.

Applicants traverse this rejection. The Resin 1-1 disclosed in Sato et al. does not teach or suggest the chemically amplified resist composition polymer as claimed in amended claims 1-9. Resin 1-1, as discussed in Sato et al. at pages 2-4, paragraphs [0021] – [0040], is comprised of essentially three kinds of repeating units represented by the following formulas I, II, and III:

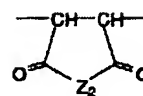
Formula I:



Formula II:



Formula III:



Although Resin 1-1 does contain ethoxymethyl acrylate, as stated by the Examiner, Applicants argue that the Examiner must compare the Resin 1-1 itself containing norbornene/ethoxymethyl acrylate/maleic anhydride with the polymer represented by Formula I in claims 1-9, as amended by Applicants herein.

In the amended claims, Formula I and Resin 1-1 are different in the essential repeating unit. The Examiner stated that, in the case of Sato et al., for Formula I of the claims, R_3 would be a hydrogen atom, R_1 would be an alkyl group having 2 carbon atoms, m and n would both be 0, and l would be 0.19. However, in the amended claims, R_1 is a cyclic alkyl group having 5 to 30 carbon atoms, thus specifically excluding an alkyl group having 2 carbon atoms. In addition, m is 0.1 to 0.7, thus specifically excluding a case where m and n are both 0. These amendments do not represent new matter, since they are fully supported by examples in the present invention.

Also, the Examiner stated that Formula I of the present claims does not exclude other repeating units such as norbornene unit or maleic anhydride unit, since the sum of l , m and n does not necessarily have to equal 1. However, Applicants respectfully argue that one of ordinary skill in the art would easily recognize that the sum of a repeating unit in the polymer is 1, despite the fact that it is not specifically mentioned in the specification. Therefore, it is difficult to accept the Examiner's assertion, that is, that other repeating units are not excluded from the claimed invention simply because the claim language does not state that the sum of l , m , and n must be equal to 1.

Thus, Resin 1-1 of Sato et al. and the polymer represented by Formula I in the claimed invention, as amended, differ in the repeating unit. Accordingly, Applicants respectfully request that the Examiner withdraw his rejections based upon Sato et al.

With regard to the positive photoresist composition, because the polymer of the present invention and that of the reference 1 are different, as stated above, the positive photoresist composition in amended claims 3-9 containing the novel polymer represented by Formula I of the present invention is also novel. Accordingly, Applicant respectfully request that the rejection based upon Sato et al. be withdrawn.

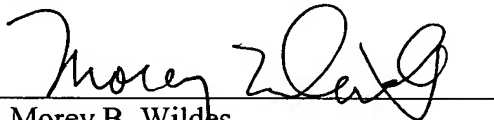
Conclusion

Reconsideration of the present application, as amended, is requested. If, upon review, the Examiner is unable to issue an immediate Notice of Allowance, the Examiner is respectfully requested to telephone Applicant's undersigned attorney in order to resolve any outstanding issues and advance the prosecution of the case.

An early and favorable action on the merits is earnestly solicited.

Respectfully Submitted,
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